

# DRYER CARS AND CLAY WORKING EQUIPMENT



FRANK H. ROBINSON  
PITTSBURGH, PA

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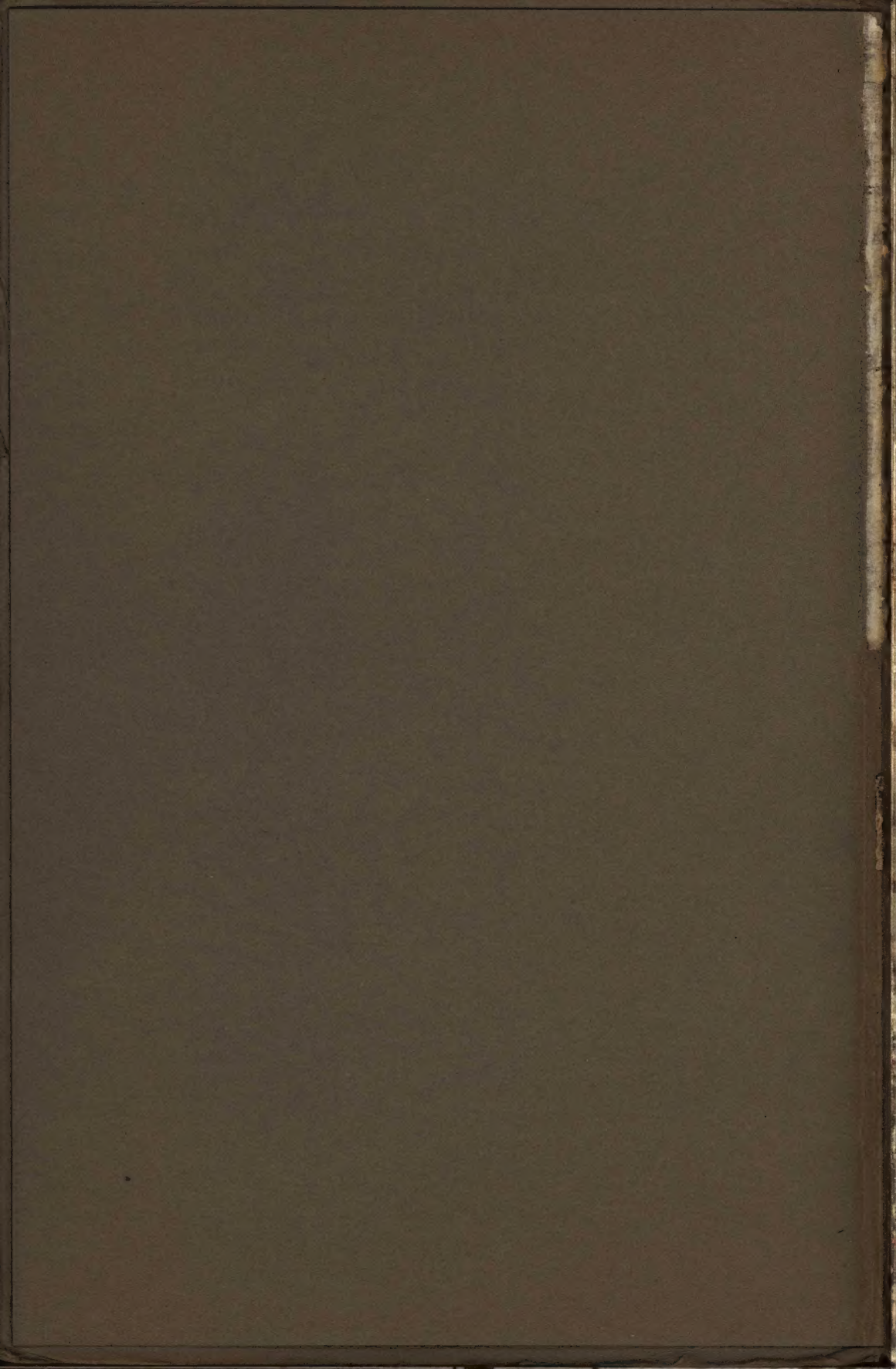
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# FRANK H. ROBINSON

MANUFACTURER AND DEALER

Dryer Cars  
Rack Cars  
Pallets  
Transfers  
Kiln Bands  
Clay Cars  
Steel Rails and Portable Track  
Richardson Repress and Dies  
Pittsburgh Hot Air Dryer  
Radiating Plate and Dryer Castings  
Waste Heat Dryer  
Brick and Tile Machinery  
Elevators  
Clay Feeders  
Screens  
Dry and Wet Pans  
Rock and Shale Crushers  
Brick and Tile Barrows  
Wire Rope  
General Supplies and Repairs



CATALOG No. 12

GENERAL OFFICES  
FULTON BUILDING, PITTSBURGH

FACTORY  
NEW GALILEE, PA.



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Frank H. Robinson



## FOREWORD



**F**OR over twenty-three years, we have been associated with manufacturers of equipment for the Clay Working Industry, being the connecting link between the trade and the factory—and, believing that a greater personal service is possible by maintaining the closest liaison between the clay plant and the factory, have developed the idea of manufacturing the line under our own immediate direction.

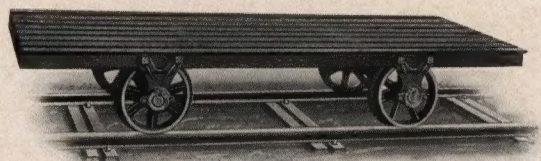
¶ This is only possible in part, but we are pleased to announce that we have taken over from the Lakewood Engineering Company, all the rights, drawings and patterns of their Dryer Car business, and are manufacturing at our factory the **LAKEWOOD LINE** of Dryer Cars, Transfers, and Kiln Bands, as well as the well known Richardson Double Die Steam Repress, the Pittsburgh Hot Air Dryer, Mine Cars and Barrows. Together with these products of our own manufacture, we are able to offer to you the Freese line of Brick and Tile Machinery, as well as other equipment and accessories for your plant.

¶ Correspondence is invited from the manufacturer of clay products with reference to his needs. We are prepared to build cars for special conditions where our standard types are not suitable for peculiar conditions.





## Lakewood Dryer Cars



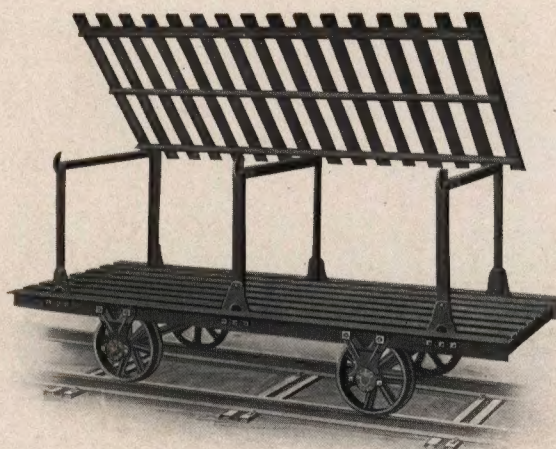
Lakewood Car No. 133

**S**TIFF Mud Car. Siderails turned out. One permanent channel deck. Siderails punched to permit the addition of uprights later if desired.

Length overall .....	6 ft. 11 in.
Width overall .....	35 in.
Height top of rail to top of car .....	13 in.
Standard track gauge .....	24 in.
Special track gauges .....	23 in. to 25 in.
Weight .....	325 lbs.
Capacity .....	2 tons

For details see pages eleven to seventeen





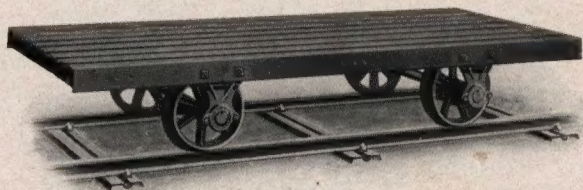
Lakewood Car No. 166

**T**HE No. 133 car, with uprights and top deck, makes our No. 166 Lakewood Car. Malleable braces supporting uprights are fastened on inside of siderails. Bottom deck is permanent, and top deck is removable.

Length overall . . . . .	6 ft. 11 in.
Length of top deck . . . . .	6 ft. 0 in.
Width overall . . . . .	35 in.
Width of top deck . . . . .	35 in.
Height top of bottom deck to lower leg of uprights, or clearance between decks, 19½ in.	
Standard track gauge . . . . .	24 in.
Special track gauges . . . . .	23 in. to 25 in.
Weight . . . . .	475 lbs.
Capacity . . . . .	2 tons, or 500 to 600 brick

For details see pages eleven to seventeen





Lakewood Car No. 167-A

**S**TIFF mud car. Siderails turned in. One permanent channel deck. Siderails punched to permit the addition of uprights later if desired.

Length overall.....	6 ft. 11 in.
Width overall.....	37 in.
Width of deck.....	35 in.
Height top of rail to top of car.....	13 in.
Track gauge.....	24 in. to 28 in.
Weight.....	345 lbs.
Capacity.....	2 tons

For details see pages eleven to seventeen





Lakewood Car No. 167

**T**HE No. 167-A car, with uprights and top deck, makes our No. 167 Lakewood Car. Steel plate gussets supporting uprights are fastened on outside of siderails. Bottom deck is permanent and top deck is removable.

Length overall.....	6 ft. 11 in.
Length of top deck.....	6 ft. 8 in.
Width overall.....	38½ in.
Width of bottom deck.....	35 in.
Width of top deck.....	35 in.
Height top of bottom deck to lower leg of uprights, or clearance between decks.....	19 in.
Track gauge.....	24 in. to 28 in.
Weight.....	500 lbs.
Capacity.....	2 tons, or 550 to 650 brick

For details see pages eleven to seventeen





Lakewood Car No. 176

**T**RIPLE Deck Car. Siderails turned in. Steel plate gussets supporting uprights fastened on outside of siderails. Bottom deck is permanent, intermediate and top decks are removable.

Length overall.....6 ft. 11 in.  
Length of decks.....6 ft. 11 in.  
Width overall.....38½ in.  
Width of decks.....35 in.  
Height from top of rail to top of bottom  
deck.....13 in.  
Height from top of rail to top of uprights...47¼ in.  
Track gauge.....24 in. to 28 in.  
Weight.....640 lbs.  
Capacity.....2 tons

For details see pages eleven to seventeen  
Furnished also in special sizes



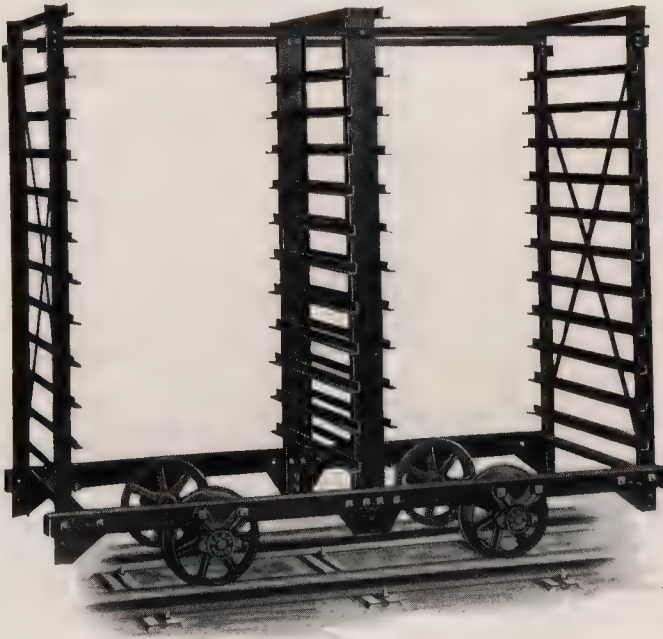
Lakewood Car No. 180

**S**IMILAR to No. 176 Lakewood Car, except that middle and upper decks are adjustable. This car is furnished with or without three channel slats in bottom deck.

Length overall.....	6 ft. 11 in.
Length of deck.....	6 ft. 11 in.
Width overall.....	38 in.
Width of deck.....	34 $\frac{3}{4}$ in.
Height top of rail to top of bottom deck.....	13 in.
Height from top of rail to top of uprights....	47 $\frac{1}{4}$ in.
Clearance between decks to suit.	
Track gauge.....	24 in. to 28 in.
Weight.....	400 lbs.
Capacity.....	2 tons

For details see pages eleven to seventeen  
Furnished also in special sizes





Lakewood Rack Car No. 188

**R**EGULARLY constructed with angle siderails, turned out; but made with channel siderails if desired. Steel plate gussets supporting uprights. Car strongly reinforced at top and ends. Cars are made twelve pallets high, and suitable for seventy-two 34 in. pallets.

Length overall.....	6 ft. 7 in.
Width overall.....	35 in.
Height top of rail to top of car.....	5 ft. 9 in.
Distance between pallets.....	4 $\frac{3}{4}$ in.
Track gauge.....	23 in. to 25 in.
Weight.....	500 lbs.
Capacity.....	2 tons

For details see pages eleven to seventeen  
Furnished also in special sizes





# Lakewood Dryer Cars

## The Details

**L**AKEWOOD Dryer Cars are entirely of steel construction, except wheels and bearings, which are made of Superior Quality of Cast Iron. In designing these cars, our aim has been to combine strength and rigidity with lightness, thereby building a light running car, easy to handle, yet strong enough to withstand the hard usage to which they are subjected.



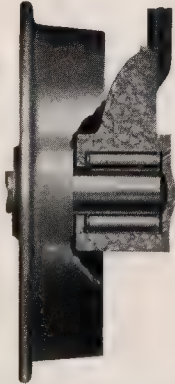
**WHEELS** are  $10\frac{3}{4}$  in. diameter on the tread and are made with seven spokes. This gives the most uniform distribution of material, insures perfect wheels in casting and equal shrinkage in cooling, so that the wheels do not come from the sand cracked or out of true. The seven spokes to each wheel make it impossible for excessive weight of load to come on the tread of the wheel, a cause of wheels cracking and breaking on the tread when a less number of spokes are used. We believe that in actual use on dryer cars, our spoke wheels will prove stronger and more satisfactory than web wheels of the same weight, but we furnish web wheels of greater weight if desired. We make heavy web wheels with chilled tread for transfers.





**Lakewood Dryer Car Axle with One Wheel Attached**

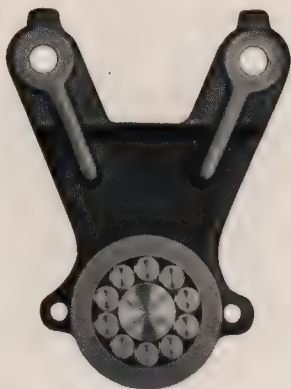
**AXLES** are  $1\frac{1}{2}$  in. and  $1\frac{3}{4}$  in. diameter and are turned with shoulders for the wheels and bearings. The wheels are pressed on the axles with hydraulic press, consequently they cannot work inward or become loose. Lakewood cars are made with gauge  $\frac{1}{2}$  in. less than track gauge, providing ample clearance.



**Lakewood Seven Spoke Wheel and One Piece Roller Bearing, showing positions of axle and rollers.**



**Lakewood One Piece Roller Bearing with Malleable Cap attached.**



Lakewood One Piece Roller Bearing with  
Malleable Cap removed



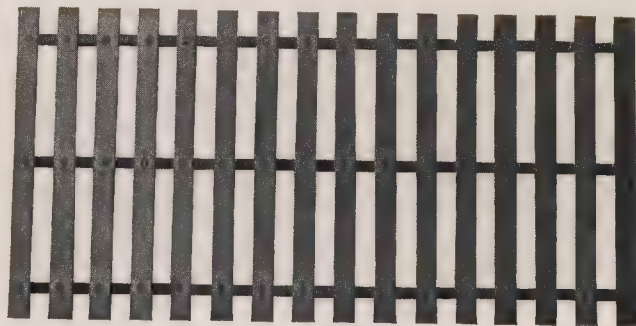
Lakewood Malleable Cap

**B**EARINGS are made in one piece, as this gives a more even surface for the rollers and requires less lubrication than divided bearings. Bearings are fastened to siderails with two  $\frac{5}{8}$  inch bolts. Malleable caps are secured to outside of bearings with two  $\frac{3}{8}$  inch bolts. These prevent the pins or rollers from working out, and make them easy of access. Means of lubrication is provided through the cap. We are the originators of the one-piece bearing with cap on the outside. The bearings and wheels are so designed that center of bearing is directly beneath point of support, and close to center of wheels. This distributes the weight more evenly and makes a better balanced and easier running car.

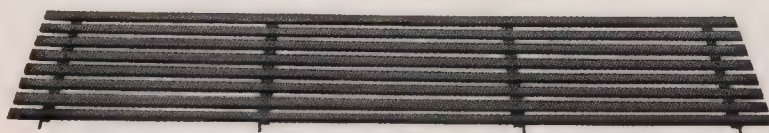
**ROLLERS** are of cold rolled steel and are finished with ball ends made in automatic machines. This insures perfectly round and smooth rollers in every respect, which is impossible when sheared or ground. Each bearing contains ten rollers.

**SIDE RAILS** are of  $3 \times 2\frac{1}{2} \times \frac{1}{4}$  inch angle riveted to four  $2 \times 1\frac{1}{2} \times \frac{3}{16}$  inch angle cross braces with angle clips and with four  $\frac{3}{8}$  inch rivets to each clip. Also furnished in heavier angle.

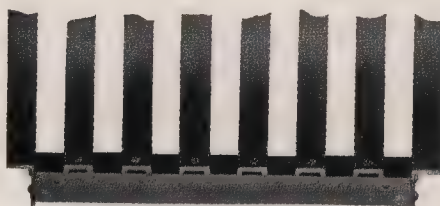




Top Deck for Lakewood Car No. 166

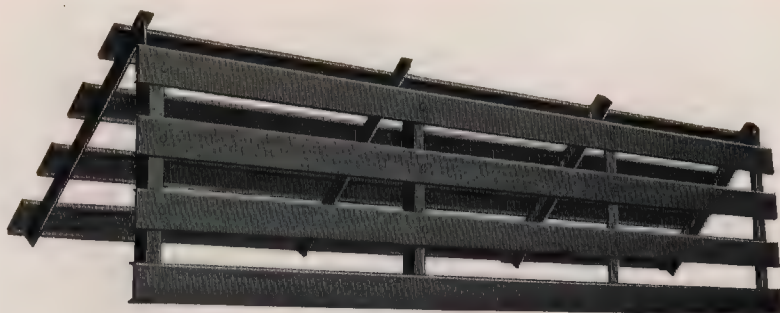


Top Deck for Lakewood Car No. 167



End View of Bottom Deck Showing the Manner  
in which Slats are Riveted to Cross Braces

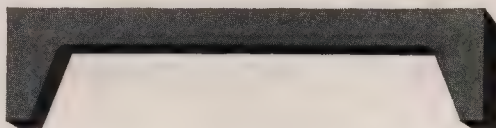
DECKS are made of  $2\frac{1}{2} \times \frac{1}{2}$  in. channel, spaced  $2\frac{1}{8}$  in. apart. This gives a surface of  $2\frac{1}{2}$  in. for the brick to rest upon. The construction of the channel deck insures lightness and great strength. Six channel slats are used in bottom decks running lengthwise of car in addition to siderails. Top decks are made with sixteen slats running crosswise of the car or eight slats running lengthwise. For bottom decks  $\frac{3}{16}$  in. and for top decks  $\frac{1}{8}$  in. steel channel is used, combining lightness with maximum strength.



Lakewood Hinged Deck

**L**AKEWOOD Hinged Decks for use on double or triple deck dryer cars, are supplied with malleable hinges and may be folded over, thus overcoming the necessity of removing the upper decks. Built to specifications only.

Exact Size of Extra Heavy Channel Used for Slats in Bottom Deck of Lakewood Dryer Cars—to Order Only



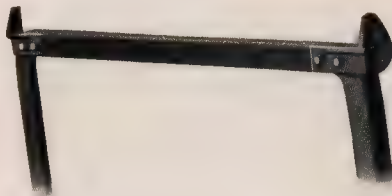
Exact Size of Channel Used for Slats in Bottom Deck of Lakewood Dryer Cars

Exact Size of Channel Used for Slats in Upper Deck of Lakewood Dryer Cars



**CHANNEL SLATS** are cold riveted to frames with  $\frac{3}{8}$  in. rivets. We invite special attention to our method of riveting, as we claim the rivets cannot become loose or shear off, and are driven close home, giving very tight joints. We are the originators of this special channel for use on dryer cars where rigidity is so essential in preventing breakage of ware. Channel slats have an elastic limit nearly four times as great as flat bars of the same weight.





Showing the One Piece Upright with  
Malleable Ears Used on the Lakewood  
Car No. 166



Showing the One Piece Upright with Steel  
Ears Used on Lakewood Car No. 167

UPRIGHTS are made of one piece of steel angle, bent in forms, and are not punched or sheared until after they are bent, which allows top decks to lie perfectly flat. The ears on the uprights for No. 166 Car are of malleable iron; for the No. 167 Car they are of steel.



End View



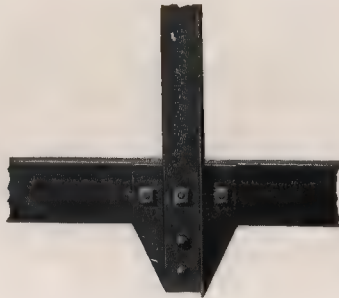
Side View

Malleable Braces Used on Lakewood Car No. 166

MALLEABLE BRACES supporting the uprights on the No. 166 Car extend 5 in. above the top of bottom deck, are bolted to side rails giving a tight fit, great strength, and absolutely prevent racking in any direction.



End View



Side View

Steel Plate Gussets Used on Lakewood Car No. 167



End View



Side View

Illustrating another Style Plate Gusset. Will be Furnished only when Specified

GUSSETS for the uprights on the No. 167 Car extend below the side rail, giving a perfectly flat deck. The Malleable brace may be substituted if preferred.





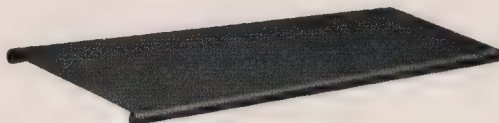
## Lakewood Pressed Steel Brick Pallets

Either Galvanized or Black Steel



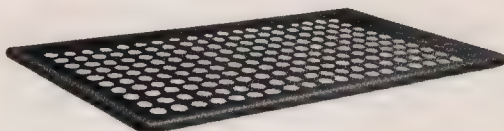
Lakewood Pallet No. 1

Made from No. 11 or No. 12 gauge steel, with  $\frac{1}{2}$  to  $\frac{3}{4}$  in. flange.



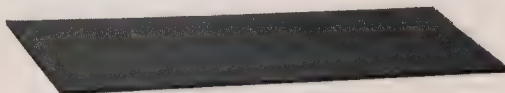
Lakewood Pallet No. 2

Made from No. 13, No. 14 or No. 16 gauge steel, with  $\frac{5}{8}$  in. roll, running full length of pallet.



Lakewood Pallet No. 3

Similar to Pallet No. 2, except that the roll also runs across ends. Made either plain or perforated.

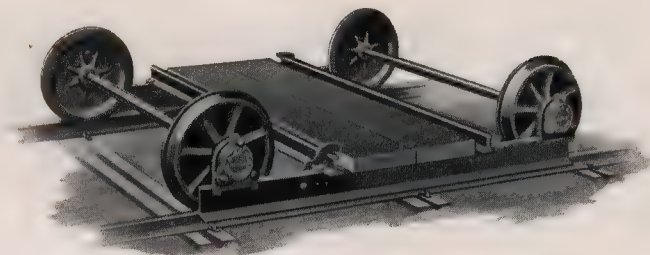


Lakewood Pallet No. 4

Made perfectly flat and level, without flange or roll, from No. 7, 8, 9, 10, 11, 12 or 13 gauge steel.



## Lakewood Transfer Cars

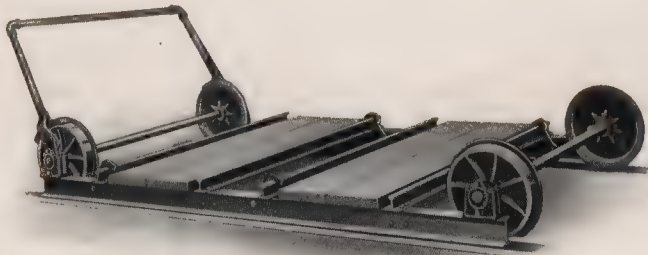


Lakewood Single Track Transfer No. 210

**O**UR transfers have heavy channel siderails securely held in position with diagonal braces; heavy chilled wheels and one piece roller bearings, with caps on the outside. Transfer No. 211 is the same as No. 210, except that it is equipped with brake and pusher.

Length overall	5 ft. 10 in.
Length overall with brake and pusher	7 ft. 10 in.
Width overall	5 ft. 0 in.
Length of rails on transfer	5 ft. 0 in.
Height top of rail to top of rail on transfer	6 $\frac{1}{4}$ in.
Diameter of wheels	14 in.
Wheel base	4 ft. 6 $\frac{1}{4}$ in.
Track gauge of rails on transfer	24 in.
Track gauge of transfer	48 $\frac{1}{2}$ in.
Weight	550 lbs.
Weight with brake and pusher	600 lbs.
Capacity	2 $\frac{1}{2}$ tons





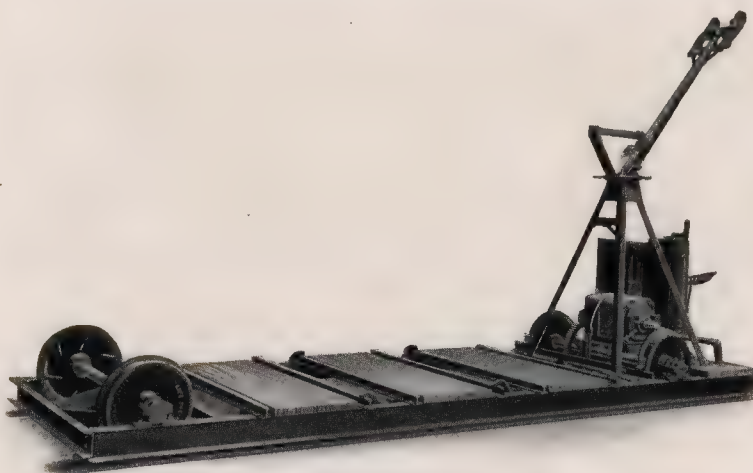
Lakewood Double Track Transfer with Brake and Pusher No. 221

OUR double transfers are of the same general construction as the single transfers. The siderails are of I beam and the transfers built correspondingly heavier to care for the extra load. No. 220 is the same as the No. 221, except that it does not have brake and pusher.

Length overall.....	11 ft. 2 in.
Length overall without brake and pusher.....	9 ft. 2 in.
Width overall.....	5 ft. 0 in.
Length of rails on transfer.....	5 ft. 0 in.
Height top of rail to top of rail on transfer.....	6 $\frac{1}{4}$ in.
Diameter of wheels.....	14 in.
Wheelbase.....	7 ft. 9 $\frac{3}{4}$ in.
Track gauge of rails on transfer.....	24 in.
Track gauge of transfer.....	48 $\frac{1}{2}$ in.
Weight.....	860 lbs.
Weight without brake and pusher.....	800 lbs.
Capacity.....	4 $\frac{1}{2}$ tons



## Lakewood Electric Transfers



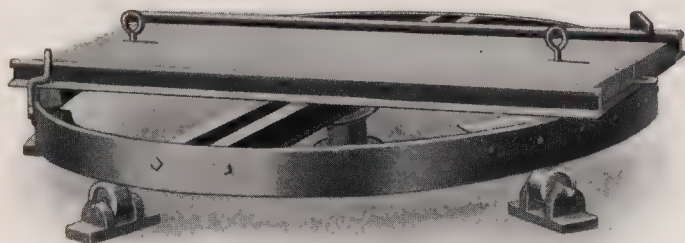
Lakewood Electric Triple Transfer No. 902

**T**HE Lakewood Electric Transfers, either single, double or triple, are built to specifications only. When writing kindly furnish us with the following information: Kind of current used; number of wires; if direct current, the voltage; if alternating, the voltage, phase and cycles; speed required of transfer; distance center to center of wires; height from ground to wires; track gauge of transfer, and on top of transfer; height from top of rail on which transfer runs to top of rail on transfer; the width overall of the cars to be used on the transfer, also wheelbase and length of these cars; the weight capacity transfer is to carry; and the grades and curves in transfer track.





## Lakewood Turntables



Lakewood Open Top Turntable No. 200

**O**UR Lakewood Open Top Turntable is a light, easy running turntable, capable of carrying two tons.

The ring is of wrought steel, supported upon cast iron rollers and turning in a heavy cast iron socket in the center.

The rails on this turntable are of 16 lb. section unless otherwise specified.

Standard size 5 ft. in diameter; other sizes built to order.



Lakewood Ball Bearing Turntable No. 201

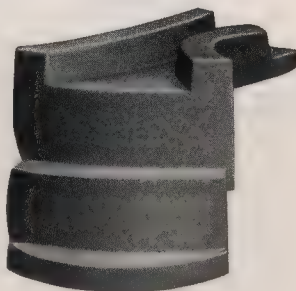
**O**UR No. 201 turntable is a cast iron turntable, revolving on a serpentine track on 2 in. balls. The pockets contain oil, insuring constant lubrication.



On account of the shape of the serpentine track, the table rests only upon balls at the upper portion of the track, the other balls rolling down into the pockets in which the oil is contained.

If guard rails are required, they will be furnished with this turntable. Eight pieces constitute one set.

In ordering turntables, give gauge of track. In the absence of instructions, gauge is assumed to be inside of rails. If the flanges run on the outside of track, so state.



Diameter	Track Gauge	Weight
3 ft. 6 in.	18 in. to 26 in.	760 lbs.
4 ft. 0 in.	18 in. to 30 in.	1000 lbs.
5 ft. 0 in.	18 in. to 36 in.	1265 lbs.
6 ft. 0 in.	18 in. to 48 in.	1780 lbs.
8 ft. 0 in.	48 in. and upwards	3430 lbs.





Turntable No. 203

OUR No. 203 Turntable combines the best features of our No. 200 and No. 201 turntables.

The cast iron top revolves within the base, which is also of cast iron.

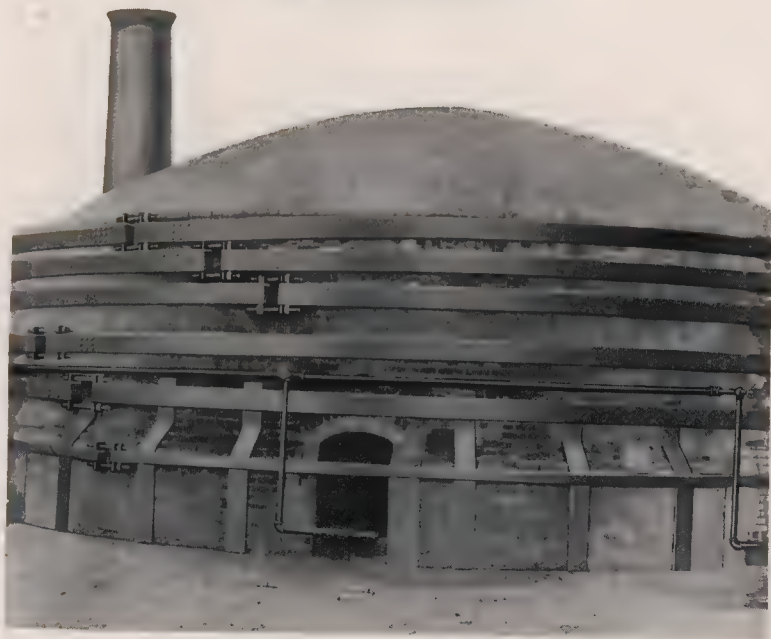


This top is supported upon hardened steel rollers, and also upon ball bearings—the rollers being placed at equal intervals near the outer edge of the top—and the ball bearings being in a race near the center of the base. This method of mounting insures a perfectly level top, and also maximum ease of operation.

The No. 203 Turntable is carried in stock in 5 ft. diameter; other sizes built to order.

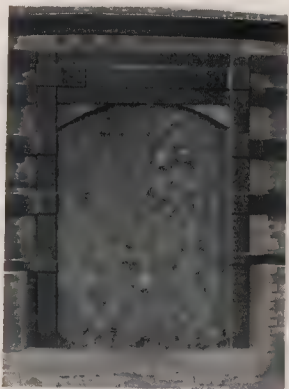


## Kiln Bands



Kiln Bands Equipped with Forged Band Lugs

**W**E are prepared to furnish Kiln Bands of any size material for any size kiln. Our bands are of Iron, which withstands corrosion much better than steel.



Bands may be equipped with either Forged Lugs, or the improved Tecktonius Lugs. The door frames are made of 4 x 1 in. bar, or of heavy tees with tie rods of 1 in. round across doorways.

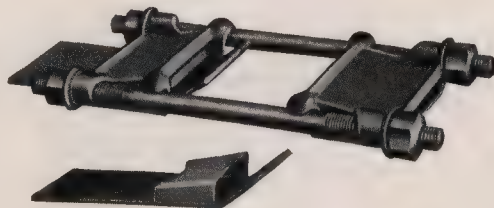






Kiln Bands Equipped with Tecktonius Lugs

**C**ROWN Bands are generally furnished in  $6 \times \frac{3}{8}$  in. or  $6 \times \frac{1}{4}$  in. and bands that butt on door frames of  $5 \times \frac{3}{8}$  in. or  $5 \times \frac{1}{4}$  in., but we can furnish bands in any width or thickness.



When writing please furnish us with the outside diameter of kiln; if a hub, the size; the number of bands required, with width and thickness, stating which go above doors and which butt on door frames; also width and height of doorways.



## Clay and Coal Cars



Clay Car No. 1

**O**UR Clay Cars are of sturdy construction, built with heavy oak bodies, strongly reinforced with band iron, and equipped with either plain self oiling or roller bearing wheels.

Length.....	5 ft. 4 in.
Width.....	2 ft. 8 in.
Height of front end.....	22 in.
Height of rear end.....	12 in.
Track gauge.....	32 in.
Band iron.....	2 x 1½ in.
Diameter of wheels.....	12 in.
Axles.....	1½ in. square
Bearings.....	Plain
Weight.....	600 lbs.
Capacity.....	30 ft.

Built to any special size and equipped with any size wheels.





Clay Car No. 2

**O**UR No. 2 Clay Car has double flare top and rounded wood bumper covered with steel bumper plate.

Length.....	6 ft. 4 in.
Width.....	4 ft. 2 in.
Height of front end.....	21 in.
Height of rear end.....	14 in.
Track gauge.....	36 in.
Band iron.....	$\frac{5}{8}$ x $2\frac{1}{2}$ in.
Diameter of wheels.....	14 in.
Axles.....	2 in. square
Bearings.....	Plain
Weight.....	1000 lbs.
Capacity.....	40 ft.

Built to any special size and equipped with any size wheels.



Clay Car No. 3

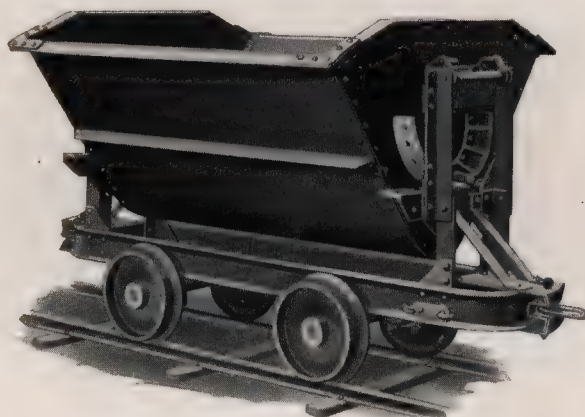
**O**UR No. 3 Clay Car is another heavy car, strongly reinforced and of larger capacity than No. 1 or No. 2. This car is equipped with double bumper, steel covered.

Length.....	6 ft. 9 in.
Width.....	4 ft. 4 in.
Height of front end.....	26 in.
Height of rear end.....	10 in.
Track gauge.....	42 in.
Band iron.....	$\frac{5}{8}$ x $2\frac{1}{2}$ in.
Diameter of wheels.....	14 in.
Axles.....	2 in. square
Bearings.....	Plain
Weight.....	1000 lbs.
Capacity.....	50 ft.

Built to any special size and equipped with any size wheels.



## Lakewood Dump Cars



Lakewood Two Way Dump Car No. 241

**T**HE Lakewood Two Way Dump Car No. 241 is built of steel, well braced, equipped with heavy chilled wheels, and self-adjusting bearings. The dumping mechanism is located at one end of the car only, the malleable lugs working independent of each other, preventing the body dumping to the wrong side, and allowing the body to be partly tilted and locked in this position—a distinct advantage where the cars are loaded by hand. Built in sizes ranging from 18 ft. to 2 yds. Dimensions of 1 yd. and 1½ yd. cars given below:

	1 Yd.	1½ Yd.
Length overall..	7 ft. 3¼ in.	7 ft. 9¾ in.
Width overall ..	4 ft. 10 in.	5 ft. 4 in.
Height overall..	3 ft. 9 in.	4 ft. 5½ in.
Length of body inside.....	4 ft. 6 in.	5 ft. 0 in.
Width of body at top.....	4 ft. 6 in.	5 ft. 0 in.
Diameter of wheels.....	12 in.	14 in.
Track gauges...	24, 30 and 36 in.	24, 30 and 36 in.
Weight....	950 lbs.	1,300 lbs.
Capacity water level.....	1 cu. yd.	1½ cu. yd.

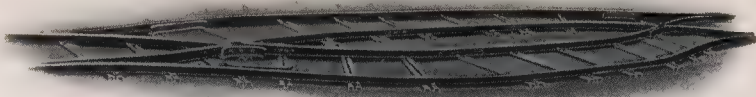




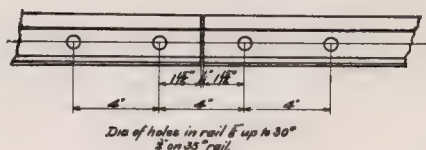
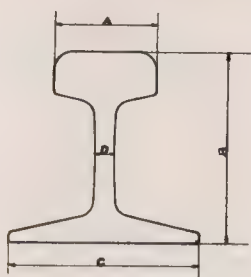
## Steel Rails and Portable Track



**W**E are prepared to furnish steel rails in any standard section, either new or relayers; also Lakewood Portable Track in 15 ft. lengths. Each section of track consists of the two

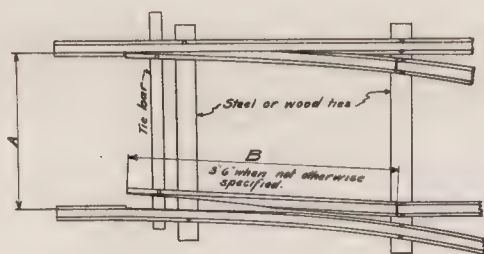


rails fastened to six steel ties with forged clips and bolts, four to each tie; also two sets of splice bars complete with bolts and nuts.

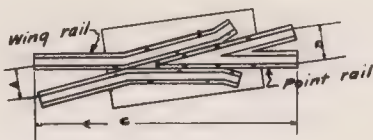


DIMENSIONS OF STANDARD RAIL SECTIONS

Weight per Yd.	A	B	C	D	Diameter of Holes
12	1 $\frac{1}{16}$ "	1 $\frac{7}{8}$ "	1 $\frac{7}{8}$ "	$\frac{3}{16}$ "	$\frac{5}{8}$ "
16	1 $\frac{3}{16}$ "	2 $\frac{1}{4}$ "	2 $\frac{1}{4}$ "	$\frac{7}{32}$ "	$\frac{5}{8}$ "
20	1 $\frac{3}{8}$ "	2 $\frac{3}{8}$ "	2 $\frac{3}{8}$ "	$\frac{1}{4}$ "	$\frac{5}{8}$ "
25	1 $\frac{1}{2}$ "	2 $\frac{3}{4}$ "	2 $\frac{3}{4}$ "	$\frac{19}{64}$ "	$\frac{5}{8}$ "
30	1 $\frac{5}{8}$ "	3"	3"	2 $\frac{1}{64}$ "	$\frac{3}{4}$ "



**THE LAKEWOOD SWITCH POINT** is furnished in 12 to 30 lb. rails; either straight or for right or left hand switches. Kindly furnish us with dimensions A and B and state size of rail and radius of curve when ordering.



**THE LAKEWOOD FROG** is furnished in 12 to 30 lb. rails, mounted on heavy base plate, and for straight or for either right, left or symmetrical switches. When ordering please furnish us with dimensions A, B and C, or give us track gauge and radius of turnout desired.



## The Richardson Double Die Steam Repress

**T**HIS repress was specially designed to meet all the varied requirements of brick yard service. Building, face, fire, shape, panel and paving brick or block, standard or Roman size, made either by stiff or soft mud process (if dried sufficiently to be hacked five or seven high), can be repressed upon it.

It is of sturdy construction, with all working parts above the dies.

Many of the working parts are made adjustable to take up wear.

Brick can be repressed with our double dies up to  $6\frac{1}{2}$  in. wide,  $4\frac{1}{2}$  in. thick, and 15 in. long. We can fit dies with name plates, panels or any peculiar markings which may be wanted. We also make any kind of dies for shape brick.

The weight of the repress with die is 6500 lbs.

The floor space required is—width 6 ft., length 8 ft. 2 in., and height 7 ft. 6 in.

The height of the feed table from floor is 36 in.

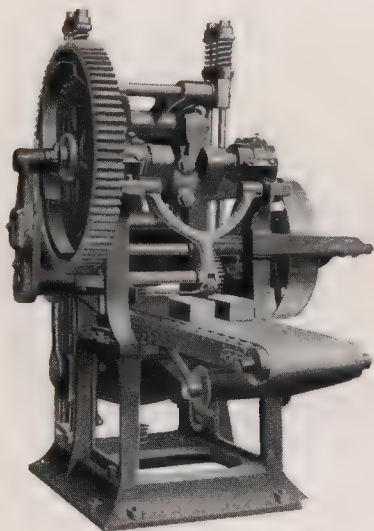
The friction clutch pulley is 30 in. diameter and 6 in. face. Repress is geared  $6\frac{1}{2}$  to 1.

The speed of the driving shaft is 120 r. p. m. for an easy capacity of 2000 brick per hour.

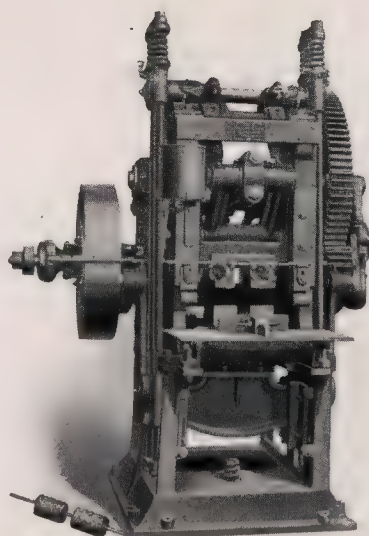
Power required is not over 2 H. P.

Capacity is guaranteed not less than 2000 brick per hour.





**Richardson Repress**  
**Rear View**

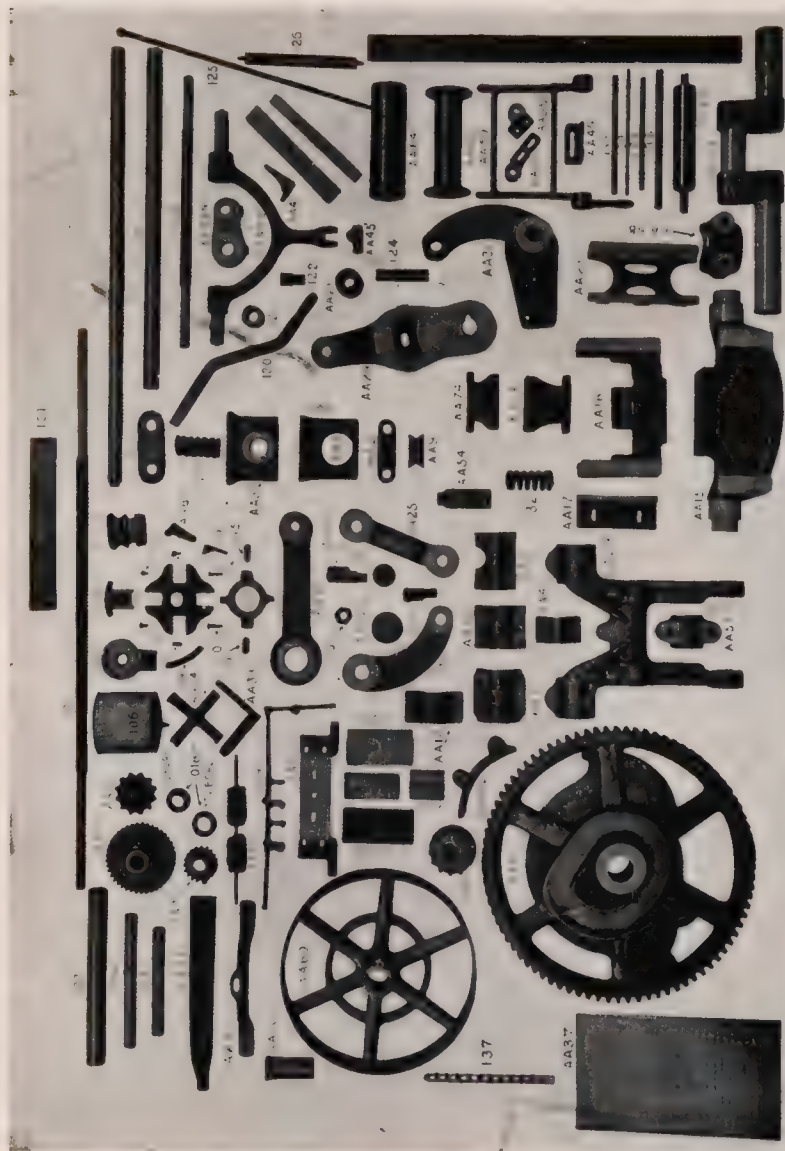


**Richardson Repress**  
**Front View**



## Repair Parts for Richardson Reprass

Description	Pattern Number	Description	Pattern Number
Cross Tie.....	101	Carrier Shaft.....	136
Side Rod with Nuts.....	102	Drive Chain, 25 links.....	137
Top Toggle Shaft.....	103	Die Plate.....	138
Middle Toggle Shaft.....	104	Side Plate for Die.....	139
Bottom Toggle Shaft.....	105	End Plate for Die.....	140
Oil Can.....	106	C. I. Base (not shown).....	AA- 1
Clutch Pin—short $\frac{1}{2}$ in. rd.....	107	Link Plate for Link Rod.....	AA- 2
Clutch Spring.....	108	C. I. Lower Link Bearing.....	AA- 3
Wood Shoe, 4 shoes to set.....	109	C. I. Upper Link Bearing.....	AA- $3\frac{1}{2}$
Clutch pin—long $\frac{1}{2}$ in. rd.....	110	C. I. Cap for Charger Arm.....	AA- 4
Clutch Link.....	111	C. I. Cap for Lifter Shaft (old AA-55, R and L).....	AA- 5
Clutch Pin—short $\frac{3}{8}$ in. rd.....	112	C. I. Cap R and L for Drive Shaft.....	AA- 6
Clutch Wedge.....	113	C. I. Cap for Crank Shaft.....	AA- 7
Clutch Pin—long $\frac{3}{8}$ in. rd.....	114	C. I. Spring Cap.....	AA- 8
Clutch Link.....	115	C. I. Nut Lock.....	AA- 9
Drive Shaft.....	116	C. I. Cap for Toggle Shaft.....	AA-10
Lifter Shaft.....	117	C. I. Side Frame, right hand.....	SK AA-11
Pitman Rod.....	118	C. I. Side Frame, left hand.....	SK AA-12
Heavy Spring, $3\frac{5}{16} \times 7 \times \frac{7}{8}$ .....	119	C. S. Crank Shaft.....	AA-13
Clutch Hand Lever.....	120	C. I. Spring Bolster (Not Shown).....	AA-14
Charger Roller.....	121	C. I. Bottom Cross Head.....	AA-15
Charger Pin.....	122	C. I. Top Cross Head.....	AA-16
Clutch Toggle, new style clutch.....	123	C. I. Lower Cross Head Guide.....	AA-17
Lifter Pin.....	124		
Charger Rod.....	125		
Wood Carrier Roller with Pins.....	126		
Side Frame for Carrier.....	127		
Oil Roller.....	128		
Oiling Outfit.....	129		
Nut for Side Rods.....	130		
Eccentric Pins.....	131		
Light Spring, $3\frac{1}{16} \times 7 \times \frac{3}{4}$ .....	132		
Carrier Shaft.....	133		
Tie Rod for Carrier.....	134		
Spacer for Carrier.....	135		



**Parts of Richardson Repr. Not Showing Base or Side Frame**





Description                      Pattern Number

C. I. Clutch Ring	AA-39
—new style	
clutch.....	SK AA-18
C. I. Clutch Sleeve	
—new style	
clutch.....	SK AA-19
C. I. Clutch Cone	
—new style	
clutch.....	SK AA-20
C. I. Lifter Roller	
with Bush-	
ing AA-21 1/2.....	AA-21
Brass Bushing for	
Lifter Roller Inc.	
in AA-21.....	AA-21 1/2
C. I. Shifter Yoke.....	AA-22
C. I. Guide for Top	
Cross Head.....	AA-23
C. I. Toggle Top.....	AA-24
C. I. Toggle Arm—	
lower.....	AA-25
C. I. Top Charging	
Arm.....	AA-26 N
C. I. Washer—small	AA-27
C. I. Washer—large	AA-27 1/2
.....	AA-28
C. I. Lifter Arm (Up-	
right).....	AA-29
C. I. Lifter Link—	
new style.....	AA-30
C. I. Lifter Link—old	
style.....	AA-30 1/2
C. I. Lifter Arm—	
right.....	AA-31
C. I. Lifter Arm—	
left.....	AA-32
C. I. Oil Can Bracket	AA-33
C. I. Oil Can Spider	AA-34
C. I. Brake Cup—	
old style.....	AA-35
C. I. Clutch Sleeve—	
old style.....	AA-36
C. I. Table.....	AA-37
C. I. Charger Guide,	
20 in.....	AA-38

Description                      Pattern Number

.....	AA-39
C. I. Charger Slide,	
20 in.....	AA-40
C. I. Charger Wings,	
R and L.....	AA-41
C. I. Table Clamp,	
R and L.....	AA-42
C. I. Charger Guide,	
18 in.....	AA-43
C. I. Charger Slide,	
18 in.....	AA-44
C. I. Joint Bearing	
for Charger Rod.....	AA-45
.....	AA-46
C. I. Charger Yoke,	
new.....	AA-46 1/2
C. I. Shifter Arm for	
Clutch.....	AA-47
C. I. Bracket on base	
(not shown).....	AA-48
C. I. Bracket on Car-	
rier.....	AA-49
C. I. Sprocket on	
Carrier, 12 T	
1 1/4 in. B.....	AA-50
C. I. Sprocket on	
Carrier, 14 T, 1 1/4	
in. B. (not shown).....	AA-50 1/2
.....	AA-51
C. I. Worm Gear	
(not shown).....	AA-52
.....	AA-53
C. I. Oil Roller	
Bracket, R and L	AA-54
C. I. Roller Bracket	
R and L (not	
shown)—(old	
style).....	AA-55
C. I. Roller Bracket	
—small, R and L.....	AA-55 1/2
C. I. Roller Bracket	
—large, R and L.....	AA-56
C. I. Pitman Cap—	
front.....	AA-57
C. I. Pitman Cap—	
rear.....	AA-58



Description	Pattern Number	Description	Pattern Number
C. I. Idler Frame for Carrier.....	AA-59	C. I. Clutch Ring—old M-10.....	AA-82
C. I. Idler Roller, flanged.....	AA-60	C. I. Clutch Shoe—old M-5.....	AA-83
C. I. Driving Pinion.....	AA-61	M. I. Hub or Spider old M-7.....	AA-84
C. I. Small Carrier Roller, plain.....	AA-62	C. I. Finger for Clutch—old M-6.....	AA-85
C. I. Large Carrier Roller, plain.....	AA-64	C. I. Collar—large, 2 $\frac{3}{16}$ in. bore—1018-M.....	AA-86
C. I. Main Gear and Cam AA-65 $\frac{1}{2}$ .....	AA-65	C. I. Collar—small, 2 $\frac{7}{16}$ in. bore—1018-M.....	AA-87
C. I. Main Gear Cam AA-65 $\frac{1}{2}$	AA-66	C. I. Sprocket, 16 T. 4 in. B. (not shown).....	AA-88
C. I. Charger (Special) (not shown)	AA-67	.....	AA-89
C. I. Washer—Special—crank shaft (not shown).....	AA-68	C. I. Charger, 1 $\frac{1}{2}$ in. high (not shown)	AA-90
C. I. Drive Pulley—old style.....	AA-69	C. I. Charger Wings, 1 $\frac{1}{2}$ in. high (not shown).....	AA-91
C. I. Bushing for Pulley, 1 complete or 2 pieces.....	AA-70	C. I. Guide, 1 $\frac{1}{2}$ in. high (not shown)	AA-92
C. I. Pinion—19 T. .773 C. P.....	AA-71	C. I. Double Charger, 1 $\frac{1}{2}$ in. high (not shown).....	AA-93
C. I. Gear and Sprocket.....	AA-72	C. I. Bushing to reduce AA-24 to 2 $\frac{5}{16}$ in. (not shown).....	AA-94
C. I. Pulley—new style clutch.....	SK AA-73	.....	AA-95
C. I. Plunger, top.....	AA-74	.....	AA-96
C. I. Plunger, bottom	AA-75	.....	AA-97
C. I. Worm Gear, new (not shown)	AA-76	.....	AA-98
C. I. Charger (not shown) (old style)	AA-77	.....	AA-99
C. I. Table (not shown) (old style)	AA-78	C. I. Bushing for Large Gear—Special.....	AA-100
.....	AA-79	C. I. Shims.....	O-84
.....	AA-80	Forged Steel Spring Saddle and Spring Special Rubber Carrier Belt, 14 in. x 11.....	M-1
C. I. Charger Blades, old style (not shown).....	AA-81		



## The Pittsburgh Hot Air Dryer



**T**HE Pittsburgh Direct Heat Dryer is designed to dry brick of any kind, drain tile, fire proofing and clay wares generally in "Nature's Own Way"—with the added advantages of uniform heat and protection from adverse weather conditions.

It is especially adapted for drying high grade brick. No machinery of any kind or pipes are used—it is natural draft throughout.





**T**HIS dryer gives all the advantages of rapid and economical drying, and yet can be operated at low temperatures and for slow drying when the nature of the material requires.

It consists of tunnels with tracks into which loaded cars of green brick are run. These tunnels are usually a hundred feet long, and will hold fourteen cars each. Tracks are laid with a fall of about twelve inches to one hundred feet, so that cars can be more readily moved through the tunnels.



**T**HE brick are allowed to remain in the tunnels from twenty-four to forty-eight hours—according to the nature of the material to be dried.

The cars gradually pass down through the tunnels as other cars of green brick are placed at the receiving ends.

As the cars are admitted at the receiving ends, the same number of cars are discharged at the other end of the tunnels.



THE heat is transmitted through the floor of the tunnels by means of our improved Radiating Plates, which are laid in the floor of each tunnel between the rails on which the cars run.

These plates are of Superior Quality of Cast Iron.

Each piece of Radiating Plate is cast with two reinforcing ribs—greatly increasing the strength.

These castings are  $25\frac{1}{2}$  in. square, and average  $\frac{5}{16}$  in. in thickness, weighing approximately 80 lbs. each.

A lap joint is made at each section, and for this joint  $1\frac{1}{2}$  in. are allowed.

We would be pleased to send additional detailed information, not only regarding the dryer, but covering any part of the system—or to send a list of users of the Pittsburgh Hot Air Dryer—upon application.



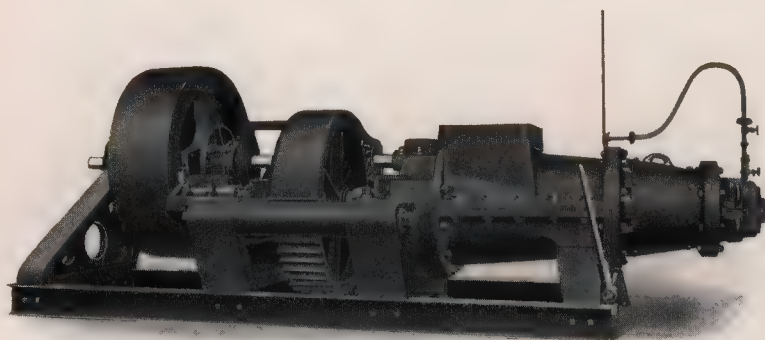


## Brick Machinery

**T**HE line of brick machinery which we are offering to the trade is manufactured by E. M. Freese & Company, of Galion, Ohio. This company has had over thirty-seven years' experience in the manufacture of improved clay working machinery, serving a great many different companies making a wide variety of clay products.

We are prepared to submit for your consideration twenty-two sizes and patterns of the Union Machine, thirteen sizes and designs of Auger Machines, twenty types of Pug Mills, and four sizes of Automatic Cutters, including the largest combination auger machine and pug mill made, the largest automatic side brick cutter, and the only automatic cutter that will produce the Dunn-Wire-Cut-Lug Paving Block.

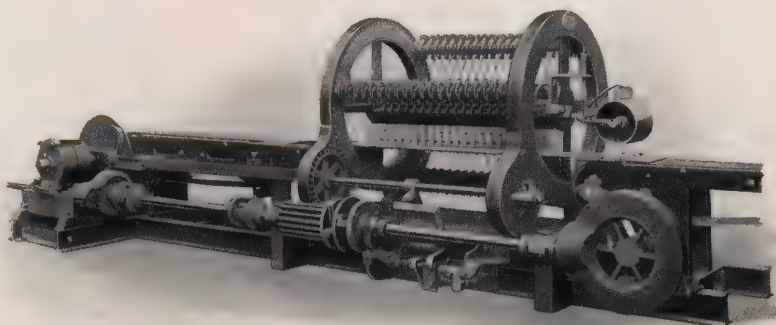
The manufacturers, over their broad experience, have tried with constant effort to improve and perfect, eliminating known defects and perpetuating every proven detail of the hundreds of machines that have gone before, which places them in a position to supply Dependable Machinery of Proven Efficiency. No manufacturer can offer more.



Auger Brick Machine

**T**HE Freese Auger Machines are made either for brick or hollow ware. They have three distinctive features: Extreme Simplicity of Design—there being but two shafts and two gears in the entire machine; Unusually Quiet Operation—due to the absence of fast running gears; Great Accessibility.

	GA	GC	GF
Length overall.....	14 ft. 8 in.	16 ft. 9 in.	15 ft. 4 in.
Width overall.....	6 ft. 7 in.	7 ft. 6½ in.	7 ft. 10 in.
Height overall.....	4 ft. 6½ in.	6 ft. 0 in.	6 ft. 0 in.
Friction Clutch Pulley....	56 x 16 in.	60 x 18 in.	60 x 18 in.
Speed of pulley.....	90-130 r. p. m.	80-125 r. p. m.	80-125 r. p. m.
Capacity per 10 hours.....	30-70 M.	50-90 M.	100-150 tons
Weight.....	14,600 lbs.	18,500 lbs.	18,500 lbs.

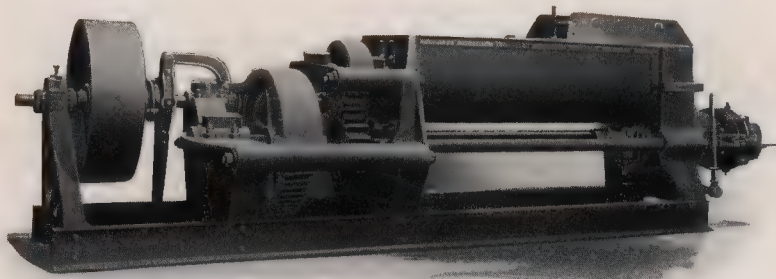


Rotating Automatic Cutter

**T**HE Freese Rotating Automatic Cutter is characterized by a positive mechanism, insuring sure action; downward shearing wire movement, producing sharp, perfect edges; and slow mechanical movements, resulting in exceptionally low upkeep expense.

	C-20	C-30	C-40
Length from die, excluding offbearing table.....	15 ft. 0 in.	17 ft. 1½ in.	18 ft. 2 in.
Length of offbearing table...	12 ft. 0 in.	20 ft. 0 in.	20 ft. 0 in.
Width overall.....	5 ft. 0 in.	5 ft. 0 in.	5 ft. 9 in.
Height overall.....	5 ft. 4 in.	5 ft. 4 in.	6 ft. 3 in.
Maximum size of column accommodated, standard construction.....	10⅞ x 5 in.	10⅞ x 5 in.	13 x 6¾ in.
With special platens slightly larger			
Capacity per 10 hours.....	to 75000	to 100,000	to 75,000
Weight.....	9,000 lbs.	10,000 lbs.	12,000 lbs.



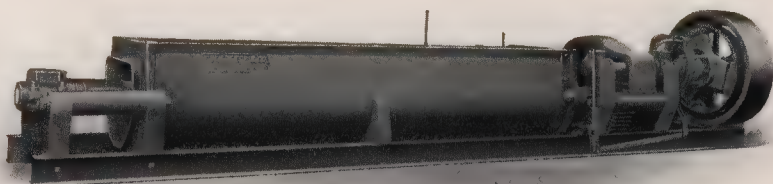


Freese Union Machine

**T**HE Union Machine is a combination of the Auger Machine and Pug Mill in one construction, and is operated by one set of gears. Our Union Machines are built in five sizes, for either brick or hollow ware, and are of an improved pattern, having great accessibility and exceptionally quiet operation.

	KC Brick	KD Brick	KD Hollow Ware
Length overall.....	24 ft. 9 in.	19 ft. 3½ in.	16 ft. 8 in.
Width overall.....	7 ft. 6½ in.	5 ft. 6 in.	7 ft. 7 in.
Height overall.....	6 ft. 1 in.	5 ft. 5 in.	6 ft. 5½ in.
Friction Clutch Pulley.....	60 x 18 in.	42 x 12 in.	60 x 20 in.
Speed of pulley.....	100-140 r.p.m.	150-175 r.p.m.	90-150 r.p.m.
Capacity per 10 hours.....	40-80 M.	20-40 M.	Up to 200 tons
Weight.....	22,200 lbs.	12,000 lbs.	32,000 lbs.

Furnished also in other sizes



Model P-28 Pug Mill

**I**N the manufacture of brick or other clay ware, proper preparation of the material is of the greatest importance, as it influences both the quality of the product, and the cost of manufacture. Freese Pug Mills are made with either front or rear end discharge, and either spur or bevel geared.

	P-28	P-32	P-36
Length overall.....	21 ft. 8 in.	17 ft. 7 in.	19 ft. 9 in.
Width overall.....	5 ft. 5 in.	5 ft. 5 in.	5 ft. 5 in.
Height overall.....	4 ft. 2½ in.	4 ft. 2½ in.	6 ft. 0 in.
Friction Clutch Pulley.....	42 x 12 in.	42 x 14½ in.	42 x 14½ in.
Speed of pulley.....	120-150 r.p.m.	120-150 r.p.m.	120-150 r.p.m.
Capacity per 10 hours, material for.....	150 M. Brick	75 M.	100 M.
Weight.....	9,700 lbs.	13,000 lbs.	11,500 lbs.

Furnished also in other sizes



## Elevators



Freese Clay Elevator with E-6  
Improved Elevator Boot





**T**HE Freese Clay Elevators are either geared or direct driven—and consist of the top drum, boot, sufficient steel buckets and belting for any required height.

The face of drums and width of buckets—as well as the style of buckets—is nominal with purchaser.

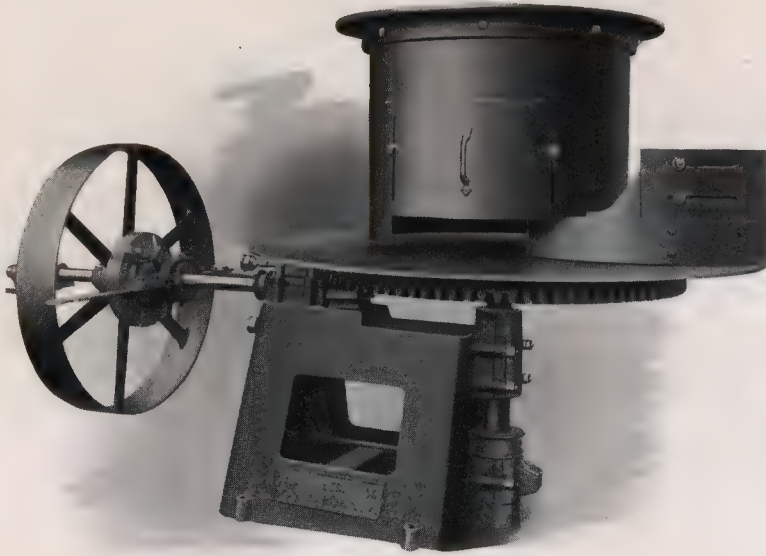
Special attention is directed to our elevator boot, which is of an improved and heavy pattern, the journal bearings being adjustable and protected from dust.

One of the ends of the boot can be raised for cleaning, permitting the use of a shovel.

In addition to Clay Elevators, we are also prepared to furnish Shale and Ground Clay Conveyors, and Waste Ends Elevators and Conveyors.



## Clay Feeders

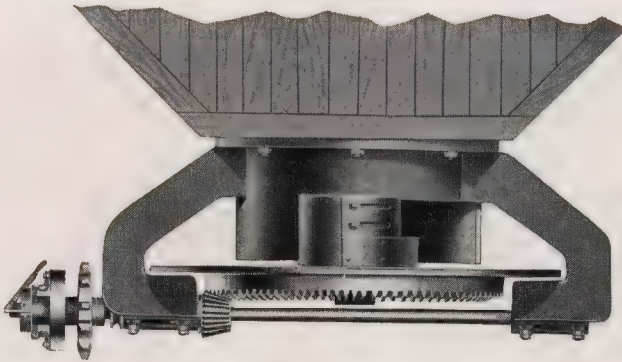


Model E-18 Automatic Disc Feeder

**T**HIS Clay Feeder is substantially built throughout. The base, containing the three journal boxes, is made in one casting, insuring proper meshing of gears and permanent rigidity.

Diameter of Disc.....	5 ft. 0 in.
Diameter of Cylinder.....	2 ft. 6 in.
Friction Clutch Pulley.....	36 in. x 6 in.
Speed of Pulley.....	35 to 40 r. p. m.
Capacity per 10 hours.....	up to 600 tons
Weight.....	1,850 lbs.

Also other sizes



Model E-28 Automatic Disc Feeder

**O**UR Model E-28 Automatic Disc Feeder is bolted directly to the bin, requiring no other support, and automatically delivers the pulverized material at a steady, uniform rate to the pug mill.

Diameter of Disc.....	4 ft. 10½ in.
Diameter of Cylinder.....	2 ft. 8 in.
Friction Clutch Sprocket, as shown.....	13 Teeth
Friction Clutch Pulley.....	36 in. x 6 in.
Capacity per 10 hours.....	up to 500 tons
Weight.....	1,700 lbs.





## Clay Screens



**Models E-2 and E-3 Plano Wire Screens**



**O**UR Piano Wire Screens are of heavy proportions, so that the wires may be given great tension.

The Side Bars are of 9 in. steel channels, to the ends of which are bolted the heavy iron castings carrying the hook bolts.

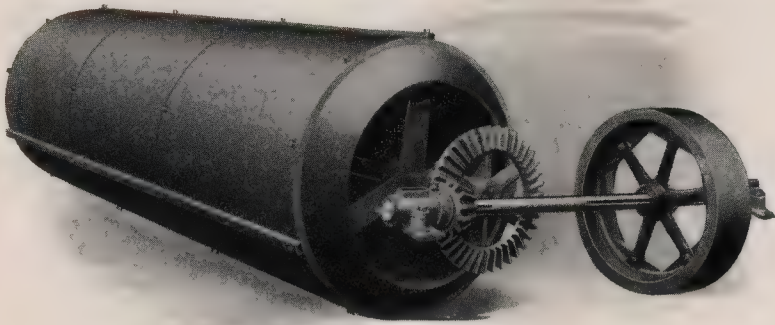
These hook bolts, on which the wires are fastened, are drop forged steel three-eighths inch square.

The Mesh of the Screen is determined by three threaded spacing bars.

	E-2	E-3
Length overall . . . . .	7 ft. 6 in.	8 ft. 0 in.
Width overall . . . . .	2 ft. 5 in.	2 ft. 11 in.
Length of screening surface . . . . .	4 ft. 6 in.	5 ft. 0 in.
Width of screening sur- face . . . . .	2 ft. 0 in.	2 ft. 6 in.
Weight . . . . .	1000 lbs.	1,400 lbs.



## Revolving Screens



Model E-19 Revolving Screen





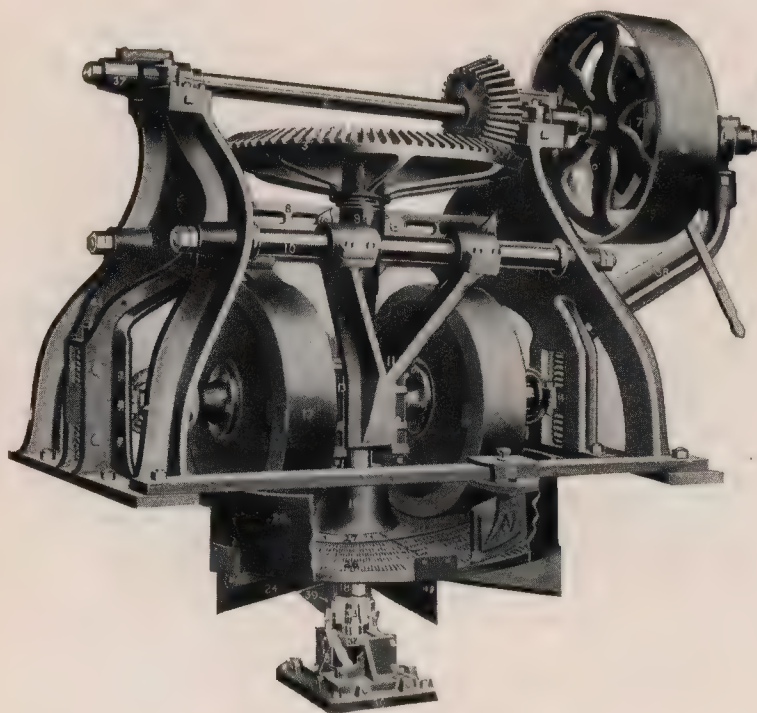
**T**HE Model E-19 Screen is of the Revolving Type, built in the form of a cylinder, eliminating the objectionable corners of the hexagon screen, thereby reducing the tendency of the clay to gather or build up.

All perforated metal is easily renewable. The screening surface is made in three sections, any one of which may be renewed without changing the others.

Length overall .....	5 ft. 11 in.
Diameter of screen cylinder .....	3 ft. 9½ in.
Length of screen cylinder .....	12 ft. 0 in.
Diameter of pulley .....	30 in.
Width of pulley .....	6 in.
Speed of pulley .....	45 to 55 r. p. m.



## Dry Pans



Stevenson Standard 9 Foot Dry Pan



**W**E are prepared to offer Dry and Wet Pans in any size, in either standard or heavy duty models, and will gladly furnish details upon request.

From an economic standpoint, the value of quality has been fully established by actual experience.

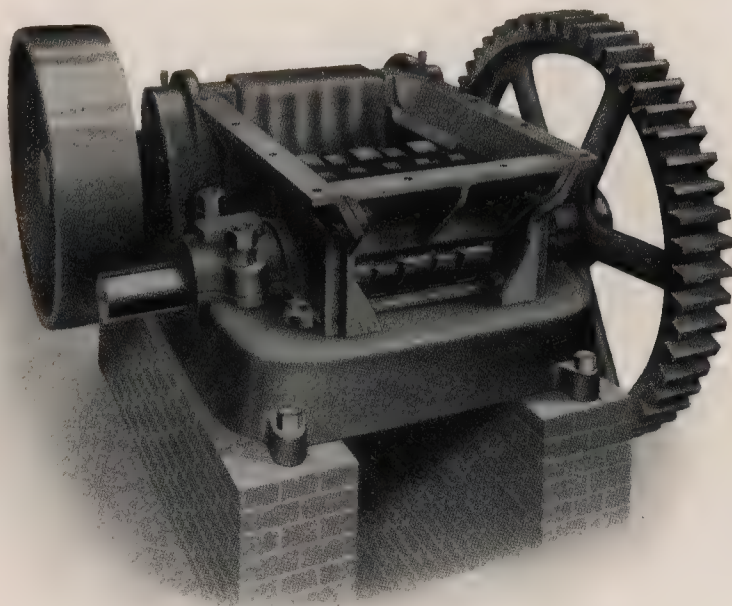
The Pan illustrated on the preceding page is a standard pan; the setting is designed for facilitating and cheapening the handling of ground clay to the elevator.

Diameter of rolls .....	50 in.
Face of rolls .....	10 in.
Crown wheel .....	72 in. x $7\frac{1}{2}$ in., $6\frac{3}{4}$ in. bore
Pinion, solid or split .....	24 in. x $7\frac{1}{2}$ in., 4 in. bore
Gear ratio .....	3 to 1
Friction clutch pulley .....	42 in. x 16 in.
Speed of pulley .....	105 r. p. m.
Weight .....	37,500 lbs.





## Crushers

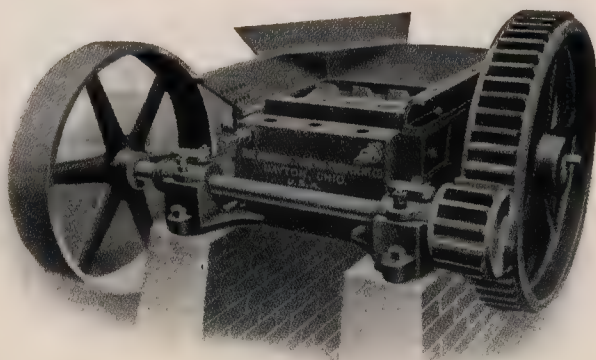


Rear View of Class "A" Crusher

**A** CRUSHER is a necessity to every modern and efficient clay working plant. The crusher possesses extraordinary strength, plus a large factor of safety. The Class "A" Crusher has fixed breaking plate; the Class "B", swinging breaking plate.

### CLASS "A"

Size of Roll	Weight	Capacity in Tons per Hour $2\frac{1}{2}$ in. Cubes	Driving Pulley	Speed of Pulley	Speed of Roll	Estimated Horsepower
18 x 24	8200 lbs.	25	38 x 10	180	36	15-18
18 x 30	10500 lbs.	35	50 x 10	180	36	16-20
18 x 36	12000 lbs.	40	50 x 12	180	36	20-25



Front View of Class "B" Crusher

**T**HE Swinging Breaking Plate in the Class "B" Crusher is mounted upon a heavy shaft and is adjustable. It is also provided with a renewable wearing plate.

CLASS "B"

Size of Roll	Weight	Capacity in Tons per Hour 2½ in. Cubes	Driving Pulley	Speed of Pulley	Speed of Roll	Estimated Horsepower
18 x 16	5000 lbs.	10	32 x 8	125	35	8-10
18 x 24	8800 lbs.	25	38 x 10	160	40	15-18
18 x 30	11000 lbs.	35	50 x 10	160	40	16-20
21 x 36	26000 lbs.	50	62 x 14	160	36	30-35
21 x 42	30000 lbs.	60	62 x 16	160	36	35-40



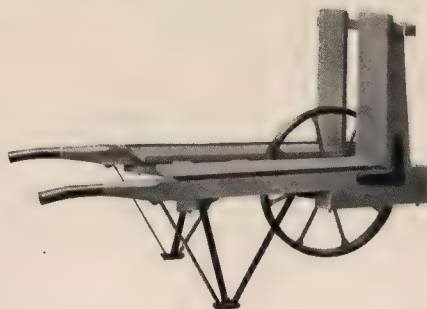
## Wheelbarrows



**O**UR Wheelbarrows are characterized by their well balanced poise, easy running wheels, and sturdiness of construction—first quality lumber reinforced with heavy iron being used.



The illustration showing bottom view gives a clear idea of the method of bracing. Brick, clay, tile and sewer pipe barrows are carried in stock, in either style illustrated, and prices will be quoted upon application.







## Wire Rope, Grate Bars and Accessories



**F**OR ordinary brick yard use, we recommend a 6 x 19 plough steel cable, which has a tensile strength of from 200,000 to 260,000 lbs. per square inch. This rope is furnished in sizes ranging from  $\frac{1}{4}$  in. to  $2\frac{3}{4}$  in. diameter.



Standard Cast Iron Grate Bar

Our cast iron Grate Bars are of an improved design and are carried in stock.

In addition to the products illustrated and described in the foregoing pages, we are prepared to furnish accessories, such as Cutting Wires, Perforated Metal, Pan Screens, Clips for Wire Rope, Pillow Blocks, Line Shafting, Bearings, Belting, etc.

Our Used Machinery Department provides an outlet for the plant that is installing new equipment, and also places at the disposal of our customers satisfactory used equipment.



## Our Service Department

**O**UR Service Department has been created for the single purpose of giving service to our customers.

Our Service Representative will call regularly at the plants of our customers, and will render any desired assistance to the Superintendent. His aim will be to observe whether or not the equipment is working properly, and to give the plant the benefit of any accumulated knowledge he may have gained in his work at our own and other factories. He will advise in the ordering of repairs.

The experience of one plant is often of great value to another—whether it be a solution of clay problems, power problems, haulage problems, or any one of a hundred others. He will be a sort of encyclopedia for the trade.

Our aim is to give one hundred per cent Service, to co-operate without intrusion, to assist where assistance is desired.





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